

Abstract

The present invention provides an adsorbent for removing sulfur compounds, which adsorbent can effectively remove a variety of sulfur compounds contained in a hydrocarbon fuel to a low concentration even at room temperature; a process for effectively producing hydrogen that can be used in a fuel cell; and a fuel cell system employing hydrogen produced through the process.

The adsorbent for removing a sulfur compound contained in a hydrocarbon fuel contains cerium oxide. The process for producing hydrogen that can be used in a fuel cell includes desulfurizing a hydrocarbon fuel through removal of a sulfur compound contained in the a hydrocarbon fuel by use of the aforementioned adsorbent and, subsequently, bringing the thus-desulfurized fuel into contact with a partial-oxidation reforming catalyst, an autothermal reforming catalyst, or a steam reforming catalyst. The fuel cell system employs hydrogen produced through the process.